



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/732,570	12/08/2000	Mark Steven Boggs	99P07535 US04	6769

7590 11/18/2005
Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

KANG, INSUN

ART UNIT	PAPER NUMBER
----------	--------------

2193

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/732,570

Applicant(s)

BOGGS ET AL.

Examiner

Insun Kang

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/2/2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 52-58 and 84-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 52-58 and 84-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed 9/2//2005.
2. As per applicant's request, claims 52-58, 84-87, and 90-96 have been amended.

Claims 52-58 and 84-96 are pending in the application.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 86-87, and 94 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Per claims 86-87 and 94, the term "adapted to" is unclear. It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2193

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 52-58 and 84-96 are rejected under 35 U.S.C. 102(e) as being anticipated by Logan III et al. (US Patent 6,243,857), hereinafter referred to as "Logan."

Per claim 52:

Logan discloses:

-regarding an entire user control program stored in a first section of memory and executed by a programmable logic controller, while said entire user control program is executing and without significantly interfering with execution timing of said entire user control program, via a programmable logic controller operating system program (i.e. "the display of the continuous or contiguous flowcharts, or portions thereof, provides for ease of editing as well as entry, with the debugging unit 34 providing for ease of debugging an original program during a run-time execution of the program," col. 3 lines 58-67; "the debugger allows the operator to isolate and display the particular program blocks which were executing at the time of the interrupt and then re-edit the program through an editor," col. 4 lines 37-48; col. 6 lines 17-42)

- displaying a section of said entire user control program indicated by a user to be debugged, said section of said entire user control comprising fewer instructions than said entire user control program (i.e. "the debugger...is supplied with data...in which when an interrupt is inputted via the keypad...providing data to the debugger to indicated which block or blocks are being executed at the time of interrupt. Inhibit

Art Unit: 2193

signals come from the keyboard 92...The Debugger...drives the display to highlight the particular block which was executing at the time of interrupt...The block numbers are displayed for purpose of enabling the programmer to get back into the flowchart at the required spot and highlights are utilized to indicate, during an interrupt cycle, which blocks in the program were executing at the time of the interrupt...only the flowcharts that are necessary to be edited will be called up to the display," col 5 lines 25-col 6 lines 17)

- compiling said section of said entire user control program to be debugged in second section of memory without stopping execution of said entire user control program(i.e. "in which during an interrupt, the flowchart blocks may be highlighted by the aforementioned debugger...to correct whatever was the problem with the initial program. Thereafter, upon recompiling, the program...is executed ...with the simple editing having been accomplished through the addition of an additional set of blocks...displayed values may be changed in the debugger, and the displayed values executed without going through a complete recompile...the debugger allows the operator to isolate and display the particular program blocks which were executing at the time of the interrupt and then re-edit the program through an editor...After the...changes have been made by the editor, they are compiled by the compiler and loaded into the Executive program so that the machine may be properly controlled," col 4 lines 1-56)

-automatically jumping to said second section of said memory during real time execution of said entire user control program when an instruction indicated to be

Art Unit: 2193

debugged is to be executed Logan discloses compiling a user-indicated section of a program in another section of memory as shown above. Therefore, accordingly, Logan inherently discloses jumping to another section of memory as claimed.

- capturing a status of said instruction as it is executed (i.e. "ease of editing as well as entry, with the debugging unit 34 providing for ease of debugging an original program during a run-time execution of the program," col. 3 lines 58-67) as claimed.

Per claim 53:

The rejection of claim 52 is incorporated and Logan further discloses the step of returning to said first section of memory after said instruction indicated to be debugged is executed (i.e. col. 4 lines 16-28) as claimed.

Per claim 54:

The rejection of claim 52 is incorporated and Logan further discloses the step of removing said section of said entire user control program from said second section of the memory once the status is captured (i.e. col. 4 lines 16-28) as claimed.

Per claim 55:

The rejection of claim 52 is incorporated and Logan further discloses the step of instrumenting each instruction compiled in said second section of memory (i.e. col. 4 lines 1-56) as claimed.

Art Unit: 2193

Per claim 56:

The rejection of claim 52 is incorporated and Logan further discloses the step of storing a table relating instructions to boolean expressions, wherein said second of said entire user control program is debugged with the boolean expressions (i.e. col. 4 lines 16-28) as claimed.

Per claim 57:

The rejection of claim 52 is incorporated and Logan further discloses the step of providing a table of pointers to instructions of said entire user control program, wherein said instructions are located in memory during debugging (i.e. col. 4 lines 16-28) as claimed.

Per claim 58:

The rejection of claim 52 is incorporated and Logan further discloses the step of limiting a data size of each compiled instruction, wherein execution of said section of said entire user control program to be debugged is faster and memory required to store said section of said entire user control program is reduced (i.e. col. 4 lines 16-28) as claimed.

Per claim 84:

The rejection of claim 52 is incorporated and Logan further discloses:
providing a table relating instructions to Boolean expressions, wherein said section of said entire user control is debugged utilizing said Boolean expressions (i.e. col. 4 lines 16-28) as claimed.

Per claim 85:

The rejection of claim 52 is incorporated and Logan further discloses:

providing a table of pointers to instructions of said entire user control program (i.e. col. 4 lines 16-28) as claimed.

Per claim 91:

The rejection of claim 52 is incorporated and Logan further discloses:

acquiring results from an execution of said section of said entire user control program (col. 4 lines 1-15) as claimed.

Per claim 92:

The rejection of claim 52 is incorporated and Logan further discloses:

executing said section of said entire user control program (col. 4 lines 1-15) as claimed.

Per claim 93:

The rejection of claim 52 is incorporated and Logan further discloses:

displaying results from an execution of said section of said section of said entire user control program on a human machine interface of said programmable logic controller(col. 4 lines 1-15) as claimed.

Per claim 95, it is the machine-readable medium version of claim 52, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 52 above.

Per claim 96, it is the circuit version of claim 52, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 52 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 86-90 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Logan III et al. (US Patent 6,243,857), hereinafter referred to as "Logan."

Per claim 86:

The rejection of claim 52 is incorporated and Logan further discloses a programmable controller and debugging a program for controlling the operations of a machine (col. 10 lines 5-24; col. 6 lines 18-42). Logan does not explicitly teach a machine code instruction to save a power flow status associated with said section of said program. However, it would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control instructions. The

Art Unit: 2193

modification would be obvious because one having ordinary skill in the art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Per claim 87:

The rejection of claim 52 is incorporated and Logan further discloses a programmable controller and debugging a program for controlling the operations of a machine (col. 10 lines 5-24; col. 6 lines 18-42). Logan does not explicitly teach a machine code instruction to save a operand value associated with said section of said program.

However, it would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control instructions. The modification would be obvious because one having ordinary skill in the art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Per claim 88:

The rejection of claim 52 is incorporated and Logan further discloses a programmable controller and debugging a program for controlling the operations of a machine (col. 10 lines 5-24; col. 6 lines 18-42). Logan does not explicitly teach comparing a scan count status word to a current value of a scan counter to determine that said status came from a single scan cycle. However, it would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control instructions. The modification would be obvious because one having ordinary skill in the

Art Unit: 2193

art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Per claim 89:

Logan further discloses a programmable controller and debugging a program for controlling the operations of a machine (col. 10 lines 5-24; col. 6 lines 18-42). Logan does not explicitly teach copying a scan counter value to a scan count status word to determine that said status came from a single scan cycle. However, it would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control instructions. The modification would be obvious because one having ordinary skill in the art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Per claim 90:

Logan further discloses a programmable controller and debugging a program for controlling the operations of a machine (col. 10 lines 5-24; col. 6 lines 18-42). Logan does not explicitly teach comparing a scan count status word to a current value of a scan counter to determine that said status came from a single scan cycle and clearing a flag in a buffer if said scan count status word is different from said current value of said scan counter. However, it would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control

Art Unit: 2193

instructions. The modification would be obvious because one having ordinary skill in the art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Per claim 94:

Logan further discloses a programmable controller and debugging a program for controlling the operations of a machine (col. 10 lines 5-24; col. 6 lines 18-42). Logan does not explicitly teach determining a status window size by a number of operand values returned from an execution of said section of said program. However, it would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control instructions. The modification would be obvious because one having ordinary skill in the art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Response to Arguments

9. Applicant's arguments filed 9/2//2005 have been fully considered but they are not persuasive.

In response to applicant's argument regarding "adapted to," the term, "adapted to" perform a function is not a positive limitation but only requires the ability to so perform, therefore, the limitations which employ phrases of "adapted to" do not

distinguish over the prior art. Therefore, the rejection under 112 second paragraph has been maintained.

Per claims 52, 95, and 96:

The Applicant states that:

Logan does not teach "without stopping execution of said entire user control program...when an instruction indicated to be debugged is to be executed."

In response, Logan's debugging unit debugs an original program during a run-time execution of the program (col. 3 lines 58-67) and "the debugger allows the operator to isolate and display the particular program blocks which were executing at the time of the interrupt and then re-edit the program through an editor (col. 4 lines 37-48)." Therefore, in view of the broadest reasonable interpretation above, the rejection of claims 52, 95, and 96 is considered proper and maintained.

Per claims 86, 89, 90, and 94:

Logan discloses a programmable controller that can monitor any control functions. It would have been obvious for one having ordinary skill in the pertinent art to modify the system of Logan to be used for other possible control instructions. The modification would be obvious because one having ordinary skill in the art would be motivated to control various processes by a programmable controller and debug various programs for controlling the operations of a machine.

Per claims 53-58:

Art Unit: 2193

The applicant states that claims 53-58 are allowable as being dependent on the allowable base claim 52. As has been shown above, the rejection of the independent claim 52 by Logan is maintained, the argument that claims 53-58 are allowable as being dependent on the allowable base claim is considered moot. Accordingly, the rejections of claims 53-58 are also proper and maintained.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Insun Kang whose telephone number is 571-272-3724. The examiner can normally be reached on M-F 7:30-4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on 571-272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I. Kang
Examiner
5/23/2005

IKL

Kakali Chaki
KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100